LJUNGBERG & KÖGEL AB

BIOMIXER BM330-1

Manual

Valid for BioMixer BM330-1 version 6.x

LJUNGBERG & KÖGEL AB

Table of contents

1 Introduction

1.1 Target group

This manual is mainly written for the everyday user. For more detailed information and service information see the Technical reference manual for the BM330-1.

1.2 Technical feedback

Abelko Innovation is committed to develop high-quality equipment and technical services to all our customers. We welcome any inputs on technical issues that are encountered so that they can be resolved quickly and in the most appropriate manner. Please submit your comments/feedbacks through your local distributors or alternatively email us directly at info@abelko.se

1.3 Version

Version 1	2012-08-01: First edition of this manual
Version 2	2012-08-02: Some minor spelling corrections
Version 3	2012-08-22: More detailed alarm and measure descriptions. Added cleaning chapter 2.5.
Version 4	2012-11-13: Added Abelko Innovation commitment concerning technical feedback
	2012-11-22: References to technical reference manual instead of operators and service manual.
Version 5	2013-03-14: Reference weight shall be 477g, not 447g.
Version 6	2013-11-18:DoC introduced
Version 7	2014-06-26: Table of contents introduced

2 Installation

⚠ **The BM330-1 is a precision weighing instrument for blood. The BM330-1 has to be handled with care and the scale should not be exposed to weights over 2000g. The tray should never, under any circumstances, be used for lifting or moving the blood mixer.**

2.1 Unpacking

Lift the BM330-1 up from the box. The two grey posts on the blood mixers back can be used for lifting. Make sure that the blood mixer is intact and that all parts are well set. It should be possible to wriggle the tray sideways when the blood mixer is observed from the front.

2.2 Connecting

If a BM330-1 should be used in a network, connect a network cable to its connector on the BM330-1. If barcodes should be scanned, connect a barcode reader to its port on the BM330-1.

Make sure that the line voltage is the same as the charger that comes with the BM330-1 and also, that the right type of plug is available. Connect the charger in a free socket and to the blood mixer's charger inlet (marked CHARGER BM330-1).

If the battery should be used, insert it to the left of the blood mixer and turn the knob located on the blood mixer to secure the battery. The battery is charged as soon as the battery and the charger are connected to the blood mixer. The battery can be left inside when it is fully charged without taking damage. The battery can be charged in a separate charger as well. When the battery is charging the status is always MED and when the battery is fully charged the status turns to HI on the display.

The BM330-1 turns on as soon as it is connected either to the charger or to the battery. BM330-1 runs a short set-up sequence and when it is finished a "main menu" is showing on the display:

```
 1/8 12:40  BATT=HI
 SET=450,CLAMP OPEN
```

The BM330-1 is now ready to be used.

The BM330-1 goes to a resting state when it is not being used for a while (see the Technical reference manual for more information on how to change the settings for the resting state). If the display of the BM330-1 is turned off, push any key to switch it on again from its resting state.

2.3 Keyboard

The BM330-1 has a set of keys for manipulating its functions. The same key can be used for different tasks. Listed below are the most common functions (for more information see the Technical reference manual for the BM330-1).

Key	Function
START	Starts a new blood collection **without** scanning any barcodes.

NEW	Starts a blood collection where barcodes **should** be scanned.
PASUE	Used for temporary pausing a blood collection and also for calibration.
CLAMP	Opens and closes the tube clamp. If the clamp is open it will close and vice versa.
SET	Changes the preset SET-volume (target volume). The BM330-1has two preset volumes (from version 6.03 it has three volumes). The SET-volumes are changed in the SETUP-menu (see the Technical reference manual for more information).
SEND	Sends saved donation data to a PC (if the BM330-1 is connected to network, wireless or by wire).
RESET	Aborts a donation if the BM330-1 is in a PAUSE-mode. Aborts an ongoing barcode sequence. Goes to parking position if the blood mixer is in the main menu.
SETUP	Used for changing the setup in the BM330-1 (see the Technical reference manual for the BM330-1 for more information).
+ and -	Used in the SETUP-menu for changing values.

2.4   Check of calibration

It is recommended to, on a regular basis check the weighing accuracy of the scale. A sound calibration interval is at least once per week or if the blood mixer is being transported between different type of environments with different type of temperatures.

To check the calibration, push the PAUSE-key. The BM330-1 enters a weighing state and show both weight and expected volume (1ml blood weighs 1.06g). Put a reference weight (available by Ljungberg & Kögel) with 450ml (477g) on the tray. The BM330-1 should now be showing 450ml +- 1% (445-455ml).

If the deviation is too big (roughly +- 5ml) the calibration can be changed by going back to the main menu (push the RESET-key). Push and hold the PAUSE-key for 3 seconds for entering the calibration mode (use a reference weight from Ljungberg & Kögel when doing this). Follow the instructions on the display.

2.5   Cleaning

The blood mixer is cleaned by using a mild soap solution or another solution that is nonacidic. Bleaching solutions should not be used since this may destroy the plastic, making it tender and start to crack.

The tray should be fixed while cleaning it by holding it firmly but without using any force since this may affect the weighing accuracy.

3 Donation

A donation can be initialized in two ways; either by the START-key or by the NEW-key. The difference is that the NEW-key requires the user to scan barcodes.

3.1 Donation without barcodes

If the BM330-1 is in the resting state, push any key to exit the resting state. The main menu will be showing on the display.

```
1/8 12:40  BATT=HI
SET=450,CLAMP OPEN
```

1. Place a blood bag on the tray. If a set of bags is being used place the bag, collecting the blood, on top. Do not let any parts of the bags be lying outside of the tray since this may affect the weighing and, in that way, the volume of the donated blood.

2. Put the tube in the clamp. Be careful not letting the tube stretch between the blood bag and the clamp. It is recommended to leave at least 25cm (10 inches) between the blood bag and the clamp. Close the clamp by pushing the CLAMP-key.

```
1/8 12:40  BATT=HI
SET=450,CLAMP CLOSED
```

3. Choose the right SET-volume by pushing the SET-key.

```
1/8 12:40  BATT=HI
SET=450,CLAMP CLOSED
```

4. The blood mixer is now ready to be used. Push the START-key to start the donation. The BM330-1 will now tare the weight of the blood bag, open the clamp and start the donation.

```
VOL   SET  FLOW TIME
123  (450)  56 03:22
```

5. The donation can be temporary paused by pushing the PAUSE-key.

```
VOL=123 FL=0   03:22
PAUSE,CLAMP OPEN
```

To continue the donation, push the PAUSE-key.

To cancel the donation, push the RESET-key and confirm by pushing the RESET-key again.

6. Two different types of alarms can be activated during a donation; time alarm and flow alarm. The alarms are declared by an audio signal and with a blinking text on the display. The audio signal can be turned off by pushing the PAUSE AL. OFF-key.
   - Time alarm: The donation takes longer than the preselected time limit (see the Operator's manual on how to change the settings of the alarm).The alarm will be active during the rest of the donation.
   - Flow alarm: The blood flow is higher or lower than the preset flow limits. The alarm is deactivated as soon as the flow is within reasonable limits.

7. When the volume is starting to reach the SET-volume the BM330-1 stops moving and waits for the right volume to be reached. When the SET-volume is reached the BM330-1 automatically closes the clamp, starts to move continuously and activates an audio signal. Push the PAUSE AL. OFF-key to turn off the alarm.

```
VOL=450 FL=0    08:13
READY,CLAMP CLOSED
```

8. To end the donation, push the CLAMP-key which will open the clamp.

```
COLLECTION COMPLETED
PRESS SEND
```

The BM330-1 is now ready to send the stored information to a PC (if the BM330-1 is connected to a network). This menu can vary depending on the settings in the SETUP-menu (see the Operator's manual for more information about different sending options for the data). Push the SEND-key to transfer the data to a PC or push the RESET-key to go back to the main menu.

3.2 Donation with barcodes

The BM330-1 can be configured for scanning barcodes before and/or after a donation. The information that is being scanned can be sent to a PC for further processing.

If the BM330-1 is in the resting state, push any key to exit the resting state. The main menu will show on the display.

```
1/8 12:40  BATT=HI
SET=450,CLAMP OPEN
```

1. Push the NEW-key to start a donation. The BM330-1 will now show the text for the first barcode that should be scanned (see the Technical reference manual for the BM330-1 and also the manual for the PC-program BMCom for more information on how to configure barcodes). In the example used in this manual the first barcode is an operator's ID.

```
OPERATOR ID?
```

2. When the barcode is scanned it appears shortly on the display before the BM330-1 goes on to the next barcode. In this example the user has the signature **ABCD**.

```
OPERATOR ID?
ABCD
```

3. When all the barcodes have been scanned the following text is appearing.

```
REGISTRATION READY!
SET=450,CLAMP OPEN
```

4. The donation starts by pushing the START-key and is preceded in the same way as a donation without barcodes (see 3.1 for details).

5. When the donation is done, the text for the first barcode that should be scanned after the donation is being showed. In this example it is the results from the donation that should be scanned.

```
Result?
OK
```

6. The BM330-1 continues until all barcodes are scanned.

4 Alarm

A couple of alarms can be activated by the BM330-1 and the most common ones are listed here. For more information about the different alarms see the Technical reference manual for the BM330-1.

4.1 Battery alarm

Is activated if the battery voltage is too low for being able to use the BM330-1 in a safe way.

Change the battery or connect the charger.

4.2 Flow alarm

Is activated if the blood flow during a donation goes over or under the limits that are preset for the alarm (sees the Technical reference manual for more details on how to change the limits for the alarm).

The alarm is restored automatically when the flow goes back within the preset limits. The audio alarm can be turned off by pushing the PAUSE AL: OFF-key. Please note that if the flow goes back to normal values and then again goes outside of the preset limits the alarm is activated again.

4.3 Time alarm

Is activated if a donation takes longer than the preselected time limit (see the Technical reference manual for the BM330-1 for more details on how to change the settings for the alarm).

The audio alarm can be turned off by pushing the PAUSE AL. OFF-key.

4.4 Over- or underweight

It may happen that the tray by accident is overloaded with too much weight. If this happens the display will show the text VOL=EEE.

It may also happen that the tray is loaded with too little weight; for example if a set of blood bags are removed before the donation is finished. If this happens the display will show the text VOL=--.

If EEE or --- is showing on the display when the tray is empty it may be due to the exposure of a heavy weight and the calibration has to be controlled (see the Technical reference manual for the BM330-1 for more information).

Declaration of Conformity

according to the

Medical Devices Directive, 93/42/EEC

and

RoHS directive, 2011/65/EU

STANDARDS TO WHICH CONFORMITY IS DECLARED:

EN 60 601-1:2005
EN 50581:2012
EN 60 601-1-2
Including: EN 61000-3-2, EN 61000-3-3, EN 55011 Kl B, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4,
EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11

Manufacturer:	Abelko Innovation
Address:	Box 808, 971 25 Luleå
Telephone:	+46 920-220360
Telefax:	+46 920-220068
Marketing:	Ljungberg&Kögel AB
Address:	Box 1032, 251 10 Helsingborg
Telephone:	+46 042-139860
Telefax:	+46 042-132181
Type of Equipment:	Blood mixer
Model:	BM330-1
Product class:	Class 1

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive and Standards.

Date of issue: 18 Nov 2013

Signature:

/ Thommy Lundström

Position/title: CEO

CE